

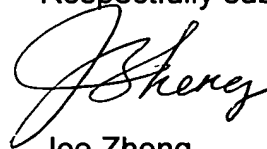
REMARKS

The Applicants respectfully request the Examiner to enter the above amendments before considering the patent application.

The amendments to the claims are supported in the specification and correct minor informalities. No new matter has been introduced in the foregoing amendments.

Allowance of the pending claims is being earnestly solicited at the earliest possible date. Please telephone the undersigned at (408)777-8873, if there are any questions.

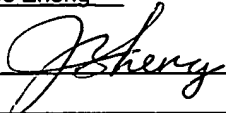
Respectfully submitted;



Joe Zheng
Reg. No.: 39,345

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Commissioner of Patents and Trademarks, Washington, DC 20231", on June 10, 2002.

Name: Joe Zheng

Signature: 

Version with markings to show changes made

In the Claims

1 (*Once amended*) A method for providing access control management to electronic data, the method comprising:

establishing a secured link with a client machine when an authentication request is received from the client machine, the authentication request including an identifier identifying a user of the client machine to access the electronic data, wherein the electronic data is secured in a format including security information and an encrypted data portion, the security information [being encrypted] including access rules and controlling restrictive access to the encrypted data portion;

authenticating the user according to the identifier; and

activating a user key after the user is authenticated, wherein the user key is used to [decrypt the encrypted] access the access rules in the security information.

2 The method as recited in Claim 1 further comprising maintaining an access control management, wherein the access control management comprises:

a rule manager including at least one set of rules for the electronic data; and

an administration interface from which [an operator manages] the rules for a designated place for the electronic data are created, managed, or updated.

3 (*Once amended*) The method as recited in Claim 2, wherein the designated place is a folder and all files in the folder are subject to the rules.

4 (*Once amended*) The method as recited in Claim 2, wherein the designated place is a repository and all files in the repository are subject to the rules.

5 (*Once amended*) The method as recited in Claim 2, wherein the rule manager provides a graphic user interface from which the rules can be created, managed or updated.

6 (*Once amended*) The method as recited in Claim 5, wherein parameters determining the rules from the graphic user interface are subsequently expressed in a markup language.

7 (*Once amended*) The method as recited in Claim 6, wherein the parameters expressed in the markup language are uploaded to the client machine after the user is authenticated.

8 (*Once amended*) The method as recited in Claim 7, wherein the markup language is Extensible Access Control Markup Language.

9 The method as recited in Claim 7, wherein the markup language is selected from a group consisting of HTML, XML and SGML.

10 The method as recited in Claim 2, wherein the access control management further comprises a user manager coupled to a database including a list of authorized users and respective access privileges associated with each of the authorized users.

11 The method as recited in Claim 10, wherein the authenticating of the user comprises:

looking up in the database for the user; and

getting, from the database, access location information as to where the user is authorized to access the electronic data if information about the user is located in the database.

12 The method as recited in Claim 11, wherein the identifier further identifies the client machine; and wherein the authenticating of the user comprises determining, from the access location information, whether the client machine is permitted by the user to access the electronic data.

13 (*Once amended*) The method as recited in Claim 11, wherein the access location information [includes] pertains to locations or specific client machines from which the user is authorized to access the electronic data.

14 The method as recited in Claim 1, wherein the user key is in the client machine; and wherein the activating of the user key comprises:

sending an authentication message to the client machine; and

activating the user key with the authentication message.

15 (*Once amended*) The method as recited in Claim 14, wherein the electronic data, when secured, includes a header that further includes the [encrypted] security information being encrypted and a signature signifying that the electronic data is secured.

16 (*Once amended*) The method as recited in Claim 15, wherein the security information includes [a set of access rules and] a file key in addition to the access rules, and wherein the file key can be retrieved to decrypt the encrypted data portion only if access privilege of the user is successfully measured by the access rules.

17 The method as recited in Claim 1 further comprising associating the activated user key with the user locally.

18 (*Once amended*) The method as recited in Claim 17, wherein the electronic data, when secured, includes a header that [further] includes the [encrypted] security information being encrypted and a signature signifying that the electronic data is secured; the encrypted security information including [a set of] the access rules and a file key, and wherein the method further comprises:

- receiving the header from the client machine;
- decrypting the security information in the header to retrieve the access rules therein; and
- retrieving the file key when the access rules are measured successfully against access privilege of the user.

19 The method as recited in Claim 18 further comprising sending the file key to the client machine in which the encrypted data portion can be decrypted with the file key by a cipher module executing in the client machine.

20 (*Once amended*) A method for providing access control management to electronic data, the method comprising:

- authenticating a user attempting to access the electronic data;

maintaining a private key and a public key, both associated with the user,
wherein the electronic data, when secured, includes a header and an
encrypted data portion, the header further includes security information
controlling who, how, when and where the secured electronic data can be
accessed and the encrypted data portion is an encrypted version of the
electronic data according to a predetermined cipher scheme;
encrypting the security information with the public key when the electronic
data is to be written into a store; and
decrypting the security information with the private key when the electronic
data is to be accessed by an application.

21 (*Once amended*) The method as recited in Claim 20, wherein the
authentication of the user comprises:

establishing a link with a client machine from which the user is attempting to
access the electronic data;
demanding credential information from the user; and
receiving the credential information from the client machine over the [secured]
link.

22 The method as recited in Claim 21, wherein the credential information
includes a pair of username and password provided by the user.

23 The method as recited in Claim 21, wherein the credential information
includes biometric information captured from the user by an apparatus coupled to
the client machine.

24 (*Once amended*) The method as recited in Claim 21, wherein the encrypting of the security information with the public key comprises:

- receiving access rules and a file key, wherein the file key has been used to produce the encrypted data portion in the client machine;
- including the access rules and [a] the file key into the security information;
- and
- encrypting the security information with the public key.

25 The method as recited in Claim 24 further comprising:

- generating the header with the security information encrypted therein; and
- uploading the header to the client machine where the header is integrated with the encrypted data portion.

26 The method as recited in Claim 24, wherein the access rules are expressed in a markup language.

27 The method as recited in Claim 26, wherein the markup language is one of Extensible Access Control Markup Language, HTML, XML and SGML.

28 The method as recited in Claim 21, wherein the decrypting of the security information with the private key comprises:

- receiving the header from the client machine over the link;
- parsing the security information from the header; and
- decrypting the security information with the private key.

29 The method as recited in Claim 28 further comprising:

- obtaining access rules from the security information;

determining whether the access rules accommodate access privilege of the user;

when the determining succeeds,

retrieving a file key from the security information; and

sending the file key to the client machine over the link.

when the determining fails,

sending an error message to the client machine over the link.

30 (*Once amended*) The method as recited in Claim 29 wherein the error message indicates that the user does not have the access privilege to access the electronic data.

31 (*Once amended*) A method for providing access control management to electronic data, the method comprising:

receiving a request to access the electronic data[by an application];

determining security nature of the electronic data;

when the security nature indicates that the electronic data is secured, the

electronic data including a header and an encrypted data portion, the

header [further] including security information[,] controlling restrictive

access to the encrypted data portion and the encrypted data portion is an

encrypted version of the electronic data according to a predetermined

cipher scheme.

determining from the security information if the user has necessary

access privilege to access the encrypted data portion; and

decrypting the encrypted data portion only after the user is determined

to have the necessary access privilege to access the encrypted

data portion.

32 The method as recited in Claim 31 further comprising retrieving a user key associated with a user making the request.

33 The method as recited in Claim 32 wherein said determining from the security information if the user has necessary access privilege comprises:

- decrypting the security information with the user key;
- retrieving access rules from the security information; and
- measuring the access rules against the access privilege of the user.

34 The method as recited in Claim 33 further comprising:

- retrieving a file key from the security information if the measuring of the access rules against the access privilege succeeds.

35 The method as recited in Claim 33 further comprising:

- causing the client machine to display an error message to the user if the measuring of the access rules against the access privilege fails.

36 The method as recited in Claim 32, wherein the retrieving of the user key comprises:

- establishing a link with a server executing an access control management;
- sending to the server an authentication request including an identifier
 - identifying the user for the access control management to authenticate the user;
- forwarding the header to the server; and
- receiving a file key retrieved from the header.

37 The method as recited in Claim 36 further comprising:

activating a cipher module; and

decrypting the encrypted data portion by the cipher module with the received file key.

38 The method as recited in Claim 37 further comprising loading the decrypted data portion into the application.

39 The method as recited in Claim 32, wherein the retrieving of the user key comprises:

establishing a link with a server executing an access control management;

sending to the server an authentication request including an identifier

identifying the user for the access control management to authenticate the user;

receiving an authentication message after the user is authenticated; and

activating the user key locally in the client machine.

40 The method as recited in Claim 39, wherein the user key is in an illegible format before the activating of the user key locally in the client machine.

41 A system for providing access control management to electronic data, the method comprising:

a client machine executing a document securing module that operates in a

path through which the electronic data is caused to pass when selected,

the document securing module determining security nature of the

electronic data,

an access control server coupled to the client machine over a network, the access control server including an account manager managing all users who access the electronic data; and wherein the client machine and a user thereof are caused by the document securing module to be authenticated with the access control server when the security nature indicates that the electronic data is secured; and wherein access rules in the secured electronic data are retrieved with a user key associated with the user.

42 (*Once amended*) The system as recited in Claim 41, wherein the access rules are measured against access privilege of the user.

43 (*Once amended*) The system as recited in Claim 42, wherein the document securing module activates a cipher module to decrypt an encrypted data portion in the secured electronic data with a file key obtained therefrom after the document securing module determines that the access privilege of the user is permitted by the access rules.

44 (*Once amended*) The system as recited in Claim 43, wherein the user key stays in the access control server that receives part of the secured electronic data; and wherein the access rules and the file key are obtained from the part of the secured electronic data

45 (*Once amended*) The system as recited in Claim 44, wherein the access control server forwards the file key to the client machine in a secured form over the network.

46 (*Once amended*) The system as recited in Claim 43, wherein the user key stays in the client machine and is activated when both the client machine and the user are authenticated by the access control server.

47 (*Once amended*) A system for providing access control management to electronic data, the method comprising:

- a storage device including at least an active place designated for keeping the electronic data secured, the secured electronic data including encrypted security information that further includes at least a set of access rules and a file key, wherein the access rules, expressed in a descriptive language, protects the file key and controls restrictive access to the secured electronic data;

- a client machine coupled to the storage device and executing a document securing module [that operates in a path through which] operative to intercept the electronic data when the electronic data is caused to transport [pass] from the active place [when selected by an application];

- an access control server coupled to the client machine over a network and receiving a part of the electronic data including the encrypted security information from the client machine, the encrypted security information being decrypted with a user key associated with a user [executing the application in the client machine] attempting to access the electronic data after both the user and the client machine are authenticated;

wherein the set of access rules are measured against access privilege of the user in the access control server, if successful, the file key is returned to the client machine to facilitate a recovery of the electronic data in clear mode.

48 (*Once amended*) A software product to be executable in a computing device for providing access control management to electronic data, the software product comprising:

program code for establishing a secured link with a client machine when an authentication request is received therefrom, the authentication request including an identifier identifying a user from the client machine to access the electronic data in a secured format including security information and an encrypted data, the security information including access rules and controlling restrictive access to the encrypted data portion;

program code for authenticating the user according to the identifier; and

program code for activating a user key after the user is authenticated,
wherein the user key is used to access the access rules in the security information.

49 (*Once amended*) The software product as recited in Claim 48 further comprising program code for maintaining an access control management, wherein the access control management comprises:

a rule manager including at least one set of rules for the electronic data; and
an administration interface from which [an operator manages] the rules for a designated place for the electronic data are created, managed or updated.

50 (*Once amended*) The software product as recited in Claim 49, wherein the designated place is a folder and all files in the folder are subject to the rules.

51 (*Once amended*) The software product as recited in Claim 47, wherein the designated place is a repository and all files in the repository are subject to the rules.

52 (*Once amended*) The software product as recited in Claim 47, wherein the rule manager provides a graphic user interface from which the rules can be created, managed or updated.

53 (*Once amended*) The software product as recited in Claim 52, wherein parameters determining the rules from the graphic user interface are subsequently expressed in a markup language.

54 (*Once amended*) The software product as recited in Claim 53, wherein the parameters expressed in the markup language are uploaded to the client machine after the authenticating of the user succeeds.

55 (*Once amended*) The software product as recited in Claim 54, wherein the markup language is Extensible Access Control Markup Language.

56 The software product as recited in Claim 54, wherein the markup language is selected from a group consisting of HTML, XML and SGML.

57 The software product as recited in Claim 49, wherein the access control management further comprises a user manager coupled to a database including a list of authorized users and respective access privileges associated with each of the authorized users.

58 The software product as recited in Claim 57, wherein the program code for authenticating the user comprises:

program code for looking up in the database for the user; and

program code for getting, from the database, access location information as to where the user is authorized to access the electronic data if the user is located in the database.

59 The software product as recited in Claim 58, wherein the identifier further identifies the client machine; and wherein the program code for authenticating the user comprises program code for determining, from the access location information, whether the client machine is permitted by the user to access the electronic data.

60 (*Once amended*) The software product as recited in Claim 58, wherein the access location information [includes] pertains to locations or specific client machines from which the user is authorized to access the electronic data.

61 The software product as recited in Claim 48, wherein the user key is in the client machine; and wherein the program code for activating the user key comprises:

program code for sending an authentication message to the client machine;
and
program code for activating the user key with the authentication message.

62 The software product as recited in Claim 61, wherein the electronic data, when secured, includes a header and an encrypted data portion; and wherein the header includes security information that can be accessed with the activated user key.

63 The software product as recited in Claim 62, wherein the security information includes a set of access rules and a file key, and wherein the file key can be retrieved to decrypt the encrypted data portion only if access privilege of the user is successfully measured by the access rules.

64 The software product as recited in Claim 48 further comprising program code for associating the activated user key with the user locally.

65 The software product as recited in Claim 64, wherein the electronic data, when secured, includes a header and an encrypted data portion, the header includes security information and a file key; and wherein the software product further comprises:

- program code for receiving the header from the client machine;
- program code for decrypting the header to retrieve access rules in the security information; and
- program code for retrieving the file key when the access rules are measured successfully against access privilege of the user.

66 The software product as recited in Claim 65 further comprising sending the file key to the client machine in which the encrypted data portion can be decrypted with the file key by a cipher module executing in the client machine.

67 (*Once amended*) A software product to be executable in a computing device for providing access control management to electronic data, the software product comprising:

- program code for authenticating a user attempting to access the electronic data;

program code for maintaining a private key and a public key, both associated with the user, wherein the electronic data, when secured, includes a header and an encrypted data portion, the header further includes security information controlling restrictive access to the encrypted data portion and protecting the private key and a public key by access rules therein;

program code for encrypting the security information with the public key when the electronic data is to be written into a store; and

program code for decrypting the security information with the private key when the electronic data is to be accessed by an application.

68 The software product as recited in Claim 67, wherein the program code for authenticating the user comprises:

program code for establishing a link with a client machine from which the user is attempting to access the electronic data;

program code for demanding credential information from the user; and

program code for receiving the credential information from the client machine over the secured link.

69 The software product as recited in Claim 68, wherein the credential information includes a pair of username and password provided by the user.

70 The software product as recited in Claim 68, wherein the credential information includes biometric information captured from the user by an apparatus coupled to the client machine.

71 (*Once amended*) The software product as recited in Claim 68, wherein the program code for encrypting the security information with the public key comprises:

- program code for receiving the access rules and a file key from the client machine over the link, wherein the file key has been used to produce the encrypted data portion in the client machine;
- program code for including the access rules and a file key into the security information; and
- program code for encrypting the security information with the public key.

72 The software product as recited in Claim 71 further comprising:

- program code for generating the header with the security information encrypted therein; and
- program code for uploading the header to the client machine where the header is integrated with the encrypted data portion.

73 The software product as recited in Claim 74, wherein the access rules are expressed in a markup language.

74 The software product as recited in Claim 73, wherein the markup language is one of Extensible Access Control Markup Language, HTML, XML and SGML.

75 The software product as recited in Claim 68, wherein the program code for decrypting the security information with the private key comprises:

- program code for receiving the header from the client machine over the link;
- program code for parsing the security information from the header; and
- program code for decrypting the security information with the private key.

76 The software product as recited in Claim 75 further comprising:

program code for obtaining access rules from the security information;
program code for determining whether the access rules accommodate access
privilege of the user;
when the determining program code is executed successfully,
program code for retrieving a file from the security information; and
program code for sending the file key to the client machine over the link.
when the determining program code is executed unsuccessfully,
program code for sending an error message to the client machine over the
link.

77 The software product as recited in Claim 76 wherein the error message
indicate that the user does not have the access privilege to access the electronic
data.

78 (*Once amended*) A software product to be executable in a computing device
for providing access control management to electronic data, the software product
comprising:

program code for receiving a request to access the electronic data[by an
application];
program code for determining security nature of the electronic data;
when the security nature indicates that the electronic data is secured, wherein
the electronic data including a header and an encrypted data portion, the
header [further] including security information[,] and the encrypted data
portion is an encrypted version of the electronic data according to a
predetermined encryption scheme.

program code for determining from the security information if the user has necessary access privilege to access the encrypted data portion; and
program code for decrypting the encrypted data portion only after [the determining from] the access privilege of the user is permitted in view of the security information[succeeds].

79 The software product as recited in Claim 78 further comprising program code for retrieving a user key associated with a user making the request.

80 The software product as recited in Claim 79 wherein the program code for determining from the security information, if the user has necessary access privilege, comprises:

program code for decrypting the security information with the user key;
program code for retrieving access rules from the security information; and
program code for measuring the access rules against the access privilege of the user.

81 The software product as recited in Claim 80 further comprising:

program code for retrieving a file key from the security information if the measuring of the access rules against the access privilege succeeds.

82 The software product as recited in Claim 80 further comprising:

program code for causing the client machine to display an error message to the user if the measuring of the access rules against the access privilege fails.

83 The software product as recited in Claim 80, wherein the program code for retrieving the user key comprises:

- program code for establishing a link with a server executing an access control management;
- program code for sending to the server an authentication request including an identifier identifying the user for the access control management to authenticate the user;
- program code for forwarding the header to the server; and
- program code for receiving a file key retrieved from the header.

84 The software product as recited in Claim 83 further comprising:

- program code for activating a cipher module; and
- program code for decrypting the encrypted data portion by the cipher module with the received file key.

85 The software product as recited in Claim 84 further comprising program code for loading the decrypted data portion into the application.

86 The software product as recited in Claim 79, wherein the program code for retrieving the user key comprises:

- program code for establishing a link with a server executing an access control management;
- program code for sending to the server an authentication request including an identifier identifying the user for the access control management to authenticate the user;
- program code for receiving an authentication message after the user is authenticated; and

program code for activating the user key locally in the client machine.

87 The software product as recited in Claim 86, wherein the user key is in an illegible format before the activating of the user key locally in the client machine.

88 The software product as recited in Claim 86, wherein the computing device is a media player having a network capacity, the media player generating audio and/or video from the electronic data when the software product is executed in the media player.